

Components of Indiana's Influenza Surveillance Program

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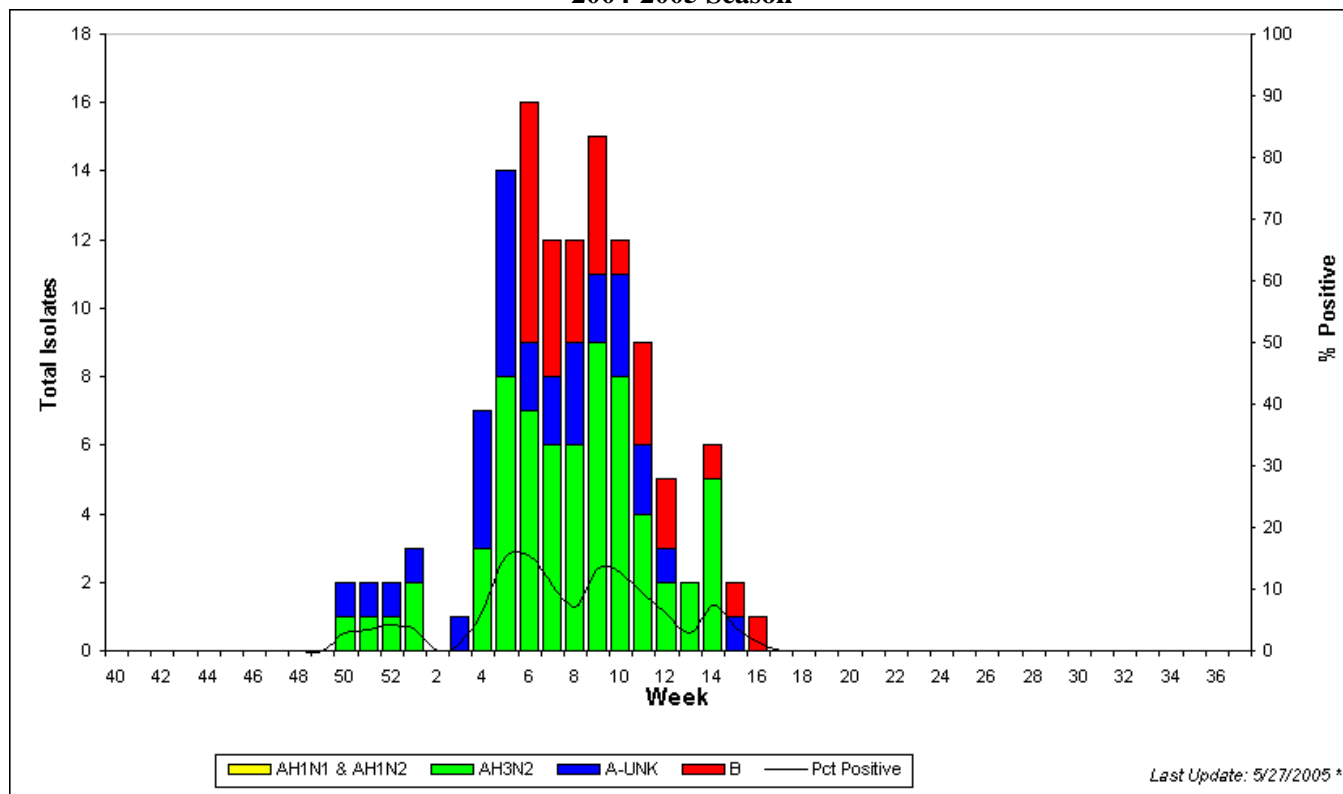
The Indiana State Department of Health (ISDH) uses six different surveillance components to depict influenza activity in Indiana. These complementary components help determine where, when, and what influenza viruses are circulating and if influenza activity is increasing or decreasing. These six components are:

1. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) reporting
2. U.S. Influenza Sentinel Provider Surveillance
3. 122 Cities Mortality Reporting System
4. State and Territorial Epidemiologists Report
5. Influenza Associated Pediatric Mortality Surveillance
6. Public Health Emergency Surveillance System (PHESS)

The **WHO and NREVSS Surveillance** component consists of 75 WHO and 50 NREVSS collaborating laboratories located throughout the U.S. that report the number of respiratory specimens tested and the number positive for Influenza A or B viruses each week to the Centers for Disease Control and Prevention (CDC). The ISDH Laboratory and other laboratories in Indiana participate in this surveillance network. Figure 1 shows the influenza subtypes, number of specimens, and the percent of specimens positive for influenza for the 2004-2005 season in Indiana.

Figure 1.

**WHO Isolates From Indiana
Reported By WHO/NREVSS Collaborating Laboratories
2004-2005 Season**



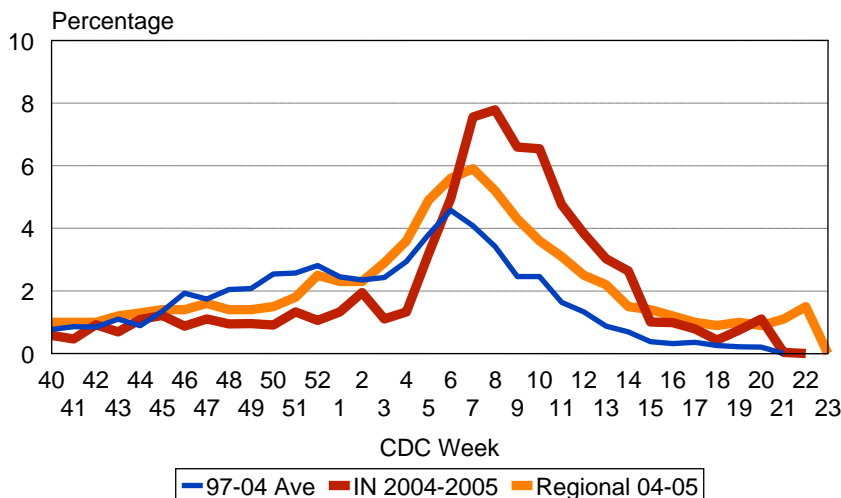
***All data are preliminary and may change as more reports are received.**
National Center for Infectious Diseases
Centers for Disease Control and Prevention
Atlanta, GA

The **U.S. Influenza Sentinel Provider Surveillance** component consists of 1,000 health care providers around the country who report the number of patients seen in their offices and the number of patients with influenza-like illness (ILI) on a year-round basis. ILI is defined by the CDC for the purpose of surveillance as fever ($>100^{\circ}\text{F}$ [37.8°C] oral or equivalent) and cough or sore throat (in absence of a known cause). Sentinel sites submit their data weekly to the CDC via Internet, phone, or fax. Additionally, sentinel participants collect nasopharyngeal swabs from patients with ILI whose onset of classic clinical signs started within 72 hours of the visit. The swabs are sent to the ISDH Laboratories for viral isolation. The ISDH provides the sentinel sites with viral submission kits, overnight shipping from the physician's office to the ISDH Laboratories, routine reports of influenza incidence in Indiana and the nation, educational opportunities regarding influenza, and a free subscription to the *Journal of Emerging Infectious Diseases*. Sentinel physicians who regularly report their data receive a certificate from the CDC and the ISDH. This past season, the ISDH provided sentinel sites with rapid laboratory test kits. However, since viral identification is critical to the surveillance system, the rapid tests served as a screening tool only and were not meant to replace viral submission.

The data that the sentinel sites provide to the CDC helps the ISDH monitor the incidence of influenza in Indiana. The ISDH has begun year-round influenza sentinel reporting since emergence of novel viruses and a potential ensuing pandemic can occur at any time of year. Figure 2 displays the percentages of patients with ILI seen at the sentinel sites from October 2004 to present.

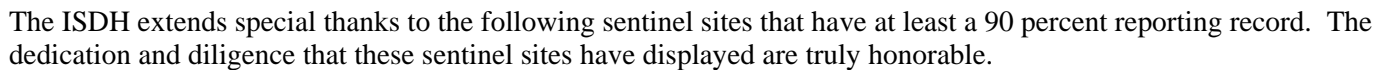
Figure 2.

Percent of Patients Seen with Influenza-Like Illness, 2004-2005



Indiana has 31 sentinel sites located throughout different parts of the state. Examples of sentinel sites include private physicians' offices, nurse practitioners, urgent care facilities, local health departments, emergency departments, and universities. Figure 3 indicates the number of sentinel sites recruited in each county.

Influenza Sentinel Sites 2004-2005



- The ISDH would like to recruit at least 50 sentinel sites throughout Indiana to obtain appropriate geographic data. Health care providers interested in becoming a sentinel site should contact Shawn Richards at srichard@isdh.state.in.us.

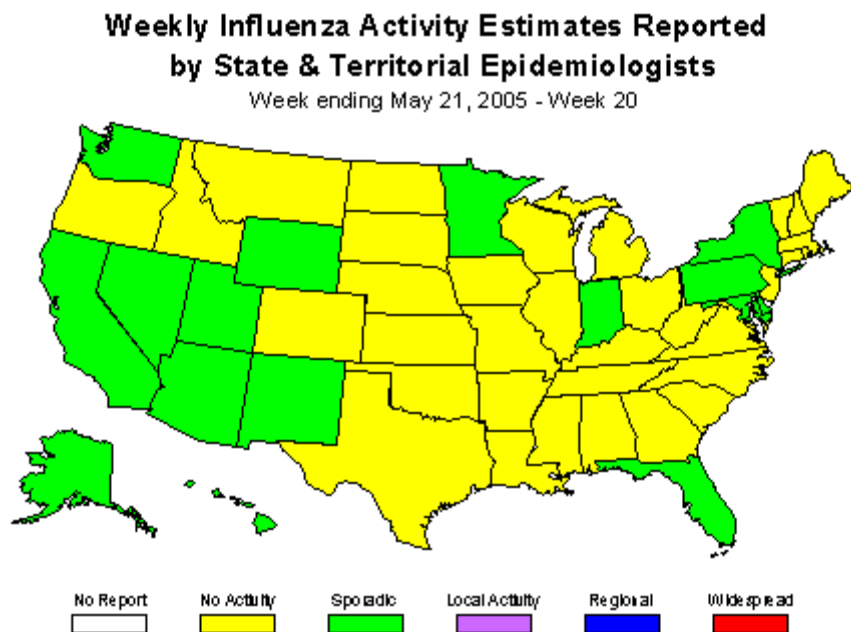
The fourth component is the **State and Territorial Epidemiologists Report**. State health departments report their estimated level of influenza activity each week to the CDC. The levels are reported as:

- **Red activity:** No laboratory-confirmed cases of influenza and no reported increase in the number of ILI.

- **Sporadic:** Small numbers of laboratory-confirmed influenza cases of a single outbreak but no increase in ILI.
- **Local:** Outbreaks of influenza or increases in ILI cases **and** recent laboratory-confirmed influenza in a single region of the state.
- **Regional:** Outbreaks of influenza or increases in ILI and recent laboratory-confirmed influenza in at least two but less than half of the regions of the state.
- **Widespread:** Outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in at least half the regions of the state.

Figure 4 shows data collected from all the State and Territorial Epidemiologists Report during the week of May 21, 2005.

Figure 4.



The fifth component of the surveillance program is monitored by the ISDH Epidemiology Resource Center through the **Influenza-Associated Pediatric Mortality Report**. Influenza-associated deaths and severe illness (encephalitis, behavioral change) in children under 18 years of age are reportable in all states. Influenza association is defined as positive for Influenza A or B by viral culture or by rapid testing method. The deaths are reported to the CDC via a secure data network. Two pediatric deaths in Indiana have been reported in 2005. As of May 25, 2005, pediatric deaths have been reported to CDC from 14 states; all deaths were reported during January-May.

The final component of the surveillance system is the ISDH **Public Health Emergency Surveillance System (PHESS)**. PHESS is a 24/7 electronic syndromic surveillance system that provides early recognition of trends or changes that could indicate a communicable disease outbreak. PHESS is based on a statewide infrastructure for electronic transfer and analysis of data. Data sources include chief complaints from hospital emergency department visits, over-the-counter drug sales, Indiana Poison Center calls, and school absenteeism. These chief complaints are then categorized into syndromes, including respiratory. If data for a particular syndrome exceeds a threshold level, the system generates an alert, which is then reported to the appropriate ISDH field epidemiologist.

Influenza surveillance in Indiana is a multi-faceted system. Analyzing the data from several different components creates a general picture of the incidence of influenza in Indiana and can help detect outbreaks and potential changes in circulating influenza viruses.